FlyBy Math™ Alignment
New York SED Math Standards

Problem Solving Strand

Students will solve problems that arise in mathematics and in other contexts.

Standard	*FlyBy Math*™ Activities
8.PS.6 Represent problem situations verbally, numerically, algebraically, and/or graphically	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

Students will apply and adapt a variety of appropriate strategies to solve problems.

Standard	*FlyBy Math*™ Activities
8.PS.7 Understand that there is no one right way to solve mathematical problems but that different methods have advantages and disadvantages	--Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.
8.PS.11 Work in collaboration with others to solve problems	--Conduct a simulation of each airplane scenario.

Communication Strand

Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

Standard	*FlyBy Math*™ Activities
8.CM.4 Share organized mathematical ideas through the manipulation of objects, numerical tables, drawings, pictures, charts, graphs, tables, diagrams, models, and symbols in written and verbal form	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

Connections Strand

Students will recognize and use connections among mathematical ideas.

Standard	*FlyBy Math*™ Activities
8.CN.1 Understand and make connections among multiple representations of the same mathematical idea	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
8.CN.3 Connect and apply a variety of	--Explain and justify solutions regarding the motion of two

strategies to solve problems	airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Predict outcomes and explain results of mathematical models and experiments.

Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	
Standard	***FlyBy Math*^{TM} Activities**
8.CN.4 Model situations mathematically, using representations to draw conclusions and formulate new situations	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Predict outcomes and explain results of mathematical models and experiments.
Students will recognize and apply mathematics in contexts outside of mathematics.	
Standard	***FlyBy Math*^{TM} Activities**
8.CN.7 Apply mathematics to problem situations that develop outside of mathematics	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.
8.CN.8 Investigate the presence of mathematics in careers and areas of interest.	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.

Representation Strand	
Students will create and use representations to organize, record, and communicate mathematical ideas.	
Standard	***FlyBy Math*^{TM} Activities**
8.R.1 Use physical objects, drawings, charts, tables, graphs, symbols, equations, or objects created using technology as representations	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
8.R.3 Recognize, compare, and use an array of representational forms	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
Students will select, apply, and translate among mathematical representations to solve problems.	
Standard	***FlyBy Math*^{TM} Activities**
8.R.6 Use representations to explore problem situations	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
8.R.7 Investigate relationships between different representations and their impact on a given problem	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
Students will use representations to model and interpret physical, social, and mathematical phenomena.	
Standard	***FlyBy Math*^{TM} Activities**
8.R.9 Use mathematics to show and understand physical phenomena (e.g., make and interpret scale drawings of figures or scale models of objects)	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Algebra Strand

Students will represent and analyze algebraically a wide variety of problem solving situations.	
Standard	***FlyBy Math*^{TM} Activities**
8.A.4 Create a graph given a description or an expression for a situation involving a linear or nonlinear relationship	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system. --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
Students will recognize, use, and represent algebraically patterns, relations, and functions.	
Standard	***FlyBy Math*^{TM} Activities**
8.A.19 Interpret multiple representations using equation, table of values, and graph	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

Geometry Strand

Students will apply coordinate geometry to analyze problem solving situations.	
Standard	***FlyBy Math*^{TM} Activities**
8.G.13 Determine the slope of a line from a graph and explain the meaning of slope as a constant rate of change.	--Interpret the slope of a line in the context of a distance-rate-time problem.
8.G.14 Determine the y-intercept of a line from a graph and be able to explain the y-intercept	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
8.G.15 Graph a line using a table of values	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.
8.G.17 Graph a line from an equation in slope-intercept form (y=mx+b)	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.
8.G.18 Solve systems of equations graphically (only linear, integral solutions, y=mx+b format,	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a

no vertical/horizontal lines)	schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.